WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 25D050

STATION NAME: Germany Creek

WATER YEAR: 2011

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Introduction

Watershed Description

This station is one of three continuously recording flow monitoring stations in the Lower Columbia River complex and one of three groups within the Intensively Monitored Watersheds (IMW) project. The other two basins being monitored are Abernathy and Mill Creeks. Germany Creek, along with Abernathy and Mill Creeks historically supported runs of coho salmon (Oncorhynchus kisutch), chinook salmon (Oncorhynchus tshawytscha), and steelhead trout (Oncorhynchus mykiss).

Gage Location

The flow monitoring station at Germany Creek, located on the left bank approximately ½ mile upstream from it's confluence with the Columbia River, is a continuously recording, telemetered gaging station that has been on-line since June of 2004.

Table 1.

Drainage Area (square miles)	22.9
Latitude (degrees, minutes, seconds)	46 11 29 North
Longitude (degrees, minutes, seconds)	123 07 30 West

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	110
Median Annual Discharge (cfs)	95
Maximum Daily Mean Discharge (cfs)	590
Minimum Daily Mean Discharge (cfs)	4.5
Maximum Instantaneous Discharge (cfs)	659
Minimum Instantaneous Discharge (cfs)	4.4
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	260
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	8.5
Number of Days Discharge is Greater Than Range of Ratings	10
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Ten days were excluded from the calculated statistics in Table 2 because of rating curve exceedances. A series of small-to-moderate storms elevated discharge to what could be considered fall/winter baseflow conditions from the beginning of the water year through mid-January 2011. The largest storm event of the year peaked on January 16, 2011. This storm event was followed by a rapid drying period from late January to late February 2011. A relatively steady decline to summer baseflow conditions started in late April 2011 and persisted to the end of the Water Year.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	4.0
Weighted Rating Error (% of discharge)	8.1
Total Potential Error (% of discharge)	12.1

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	4	3	9
Period of Ratings	10/01-10/25	10/26-01/15	01/15-09/30
Range of Ratings (cfs)	2.4-663	3.8-663	2.3-670
No. of Defining Measurements	12	9	11
Rating Error (%)	0.6	2.4	5.1

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

Rating Table 4 covered the start of the Water Year but quickly phased to Rating 3 in late October 2011 following a small storm event which moderately scoured the control. Rating 3 phased into Rating 9 over a 5-day period in mid-January 2011. A moderately large storm event during this period further scoured the control to Rating 9 which covered the remainder of the Water Year.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	1.56
Maximum Recorded Stage (feet)	5.86
Range of Recorded Stage (feet)	4.30
Number of Un-Reported Days	10
Number of Days Qualified as Estimates	17
Number of Days Qualified as Unreliable Estimates	0

Narrative

The stage record for WY2011 was continuous except for a 15-day period during which the datalogger failed to record, due to a failing turbidity probe communication cable. The gap in the stage data was filled using extremely well-correlated, regressed stage data from the adjacent Abernathy Creek station. Two days in late July 2011 were quality coded as estimates because the logger drift error exceeded 20%. Relatively minor differences between the observed primary gage index (a staff gage) and the logged stage value were adjusted using the data shift function.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	none
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date

Activities Completed
